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## WHAT IS CLAIMED IS:

- 1 1. An electronically controlled hydraulic brake system,  
2 comprising:  
3 a pressure increasing pump which increases a brake  
4 hydraulic pressure in a brake hydraulic line;  
5 a motor connected to the pressure increasing pump,  
6 the motor being controlled on the basis of a motor drive  
7 current command value to bring the brake hydraulic  
8 pressure to a target brake hydraulic pressure;  
9 a pressure detector which detects an actual  
10 hydraulic pressure in the brake hydraulic line; and  
11 a controller connected to the motor and the pressure  
12 detector, the controller being arranged  
13 to calculate an attainment brake hydraulic pressure,  
14 which is a maximum brake hydraulic pressure attained when  
15 the motor operates in response to <sup>the</sup> a motor drive current  
16 command value,  
17 to obtain a linear compensation executed attainment  
18 brake hydraulic pressure by linearly compensating the  
19 attainment brake hydraulic pressure using the actual  
20 brake hydraulic pressure,  
21 to obtain a linear compensation executed motor drive  
22 current command value by executing an inverse calculation  
23 of <sup>a</sup> the calculation for obtaining the linear compensation  
24 executed attainment brake hydraulic pressure ~~on the basis~~  
25 ~~of the linear compensation executed attainment brake~~  
26 ~~hydraulic pressure, and~~  
27 to control the motor based on the linear  
28 compensation executed motor drive current command value.

- 1 2. The electronically controlled hydraulic brake system  
2 as claimed in claim 1, wherein the controller is further

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3 arranged to set a virtual initial pressure estimated as  
4 an initial value of the brake hydraulic pressure, and to  
5 obtain the linear compensation executed attainment brake  
6 hydraulic pressure by adding the actual brake hydraulic  
7 pressure to a value obtained by subtracting the virtual  
8 initial pressure from the attainment brake hydraulic  
9 pressure.

1 3. The electronically controlled hydraulic brake system  
2 as claimed in claim 2, wherein the controller is further  
3 arranged to obtain an ideal flow rate of brake fluid by  
4 the pressure increasing pump, and to obtain the linear  
5 compensation executed attainment brake hydraulic pressure  
6 from the ideal flow rate and the actual brake hydraulic  
7 pressure.

1 4. The electronically controlled hydraulic brake system  
2 as claimed in claim 3, wherein the controller is further  
3 arranged to obtain the ideal flow rate using a flow rate  
4 equation based on fluid dynamics and to obtain the linear  
5 compensation executed attainment brake hydraulic pressure  
6 by executing an inverse calculation of the flow rate  
7 equation.

1 5. The electronically controlled hydraulic brake system  
2 as claimed in claim 4, wherein a flow rate coefficient in  
3 the flow rate equation is a fixed value.

1 6. The electronically controlled hydraulic brake system  
2 as claimed in claim 4, wherein a flow rate coefficient in  
3 the flow rate equation is a variable which is varied  
4 according to an unattained pressure between a control

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5 start brake hydraulic pressure and a control finish brake  
6 hydraulic pressure.

1 7. The electronically controlled hydraulic brake system  
2 as claimed in claim 1, further comprising a pressure  
3 decreasing valve which is disposed in the brake hydraulic  
4 line and is connected to the controller, the controller  
5 controls the pressure decreasing valve to decrease the  
6 actual brake hydraulic pressure.

1 8. The electronically controlled hydraulic brake system  
2 as claimed in claim 7, wherein the controller controls  
3 the motor when the actual brake hydraulic pressure is to  
4 be increased, and controls the pressure decreasing valve  
5 when the actual brake hydraulic pressure is to be  
6 decreased.

1 9. An electronically controlled hydraulic brake system  
2 which electronically controls a brake hydraulic pressure  
3 in a brake hydraulic line for a vehicle by outputting a  
4 motor drive current command value to a motor of a  
5 pressure increasing pump for increasing the brake  
6 hydraulic pressure, the electronically controlled  
7 hydraulic brake system comprising:

8 a controller arranged to execute a linear  
9 compensation of a maximum brake hydraulic pressure  
10 attained when the motor operates in response to a motor  
11 drive current command value, and to obtain the motor  
12 drive current command value by executing an inverse  
13 calculation of <sup>a</sup>the calculation for obtaining the linear  
14 compensation executed maximum brake hydraulic pressure.

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- 1 10. A method of electronically controlling a brake  
2 hydraulic pressure in a brake hydraulic line through a  
3 control of a motor of a pressure increasing pump which  
4 increases the brake hydraulic pressure, the method  
5 comprising:  
6       calculating an attainment brake hydraulic pressure,  
7 which is a maximum brake hydraulic pressure attained when  
8 a motor of a pressure increasing pump operates in  
9 response to a motor drive current command value;  
10       obtaining a linear compensation executed attainment  
11 brake hydraulic pressure by linearly compensating the  
12 attainment brake hydraulic pressure using an actually  
13 detected brake hydraulic pressure in the brake hydraulic  
14 line;  
15       obtaining a linear compensation executed motor drive  
16 current command value by executing an inverse calculation  
17 of ~~the~~<sup>a</sup> calculation for obtaining the linear compensation  
18 executed attainment brake hydraulic pressure ~~on the basis~~  
19 ~~of the linear compensation executed attainment brake~~  
20 ~~hydraulic pressure~~, and  
21       controlling the motor based on the linear  
22 compensation executed motor drive current command value.
- 1 11. An electronically controlled hydraulic brake system  
2 which controls a motor of a pressure increasing pump on  
3 the basis of a motor drive current command value obtained  
4 from a target brake hydraulic pressure to bring the brake  
5 hydraulic pressure to the target brake hydraulic pressure,  
6 the electronically controlled hydraulic brake system  
7 comprising:  
8       attainment brake hydraulic pressure calculating  
9 means for calculating an attainment brake hydraulic

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10 pressure, which is a maximum brake hydraulic pressure  
11 attained when the motor drive current command value is  
12 applied to the motor;

13       attainment brake hydraulic pressure compensating  
14 means for obtaining a linear compensation executed  
15 attainment brake hydraulic pressure by linearly  
16 compensating the attainment brake hydraulic pressure  
17 using an actual brake hydraulic pressure;

18       linear compensation executed motor drive current  
19 command value calculating means for obtaining a linear  
20 compensation executed motor drive current command value  
21 by executing an inverse calculation of <sup>^</sup>the calculation  
22 executed at the attainment brake hydraulic pressure  
23 compensating means on the basis of the linear  
24 compensation executed attainment brake hydraulic  
25 pressure; and

26       control means for controlling the motor based on the  
27 linear compensation executed motor drive current command  
28 value.